

REMARKS

The present application was filed on November 2, 2000 with claims 1-36. In the outstanding Office Action dated July 23, 2004, the Examiner: (i) rejected claims 1, 2, 5, 6, 12-15, 18, 19, 22, 23, 29-32, 35 and 36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,937,000 to Lee et al. (hereinafter "Lee"); (ii) rejected claims 3, 4, 20 and 21 under 35 U.S.C. §103(a) as being unpatentable over Lee in view of well known prior art (MPEP 2144.03); (iii) rejected claims 7-11 and 24-28 under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Rabiner et al., "Digital Processing of Speech Signals," Prentice-Hall, Inc., 1978 (hereinafter "Rabiner"); (iv) rejected claims 16 and 33 under 35 U.S.C. §103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,724,805 to Vigoda (hereinafter "Vigoda"); and (v) rejected claims 17 and 34 under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Cox et al., "Secure Spread Spectrum Watermarking for Image, Audio and Video," IEEE-ICIP 1996, (hereinafter "Cox").

In this response, Applicants amend claims 1, 18, 35 and 36, and cancel claims 6 and 23 without prejudice.

The present invention, for example, as recited in independent claim 1 provides a method of processing digital information in accordance with a speech signal, the method comprising the steps of generating a spread spectrum signal, wherein the spread spectrum signal is representative of the digital information and further wherein the generating step comprises implementing a predetermined modulation carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech; and then embedding the spread spectrum signal in the speech signal. Applicants have amended independent claim 1, by adding the underlined language, in an effort to further clarify the subject matter of the invention. Independent claims 18, 35 and 36 have been amended in a similar manner. The underlined language substantially corresponds to the language in claims 6 and 23. Claims 6 and 23 have been canceled.

Lee fails to disclose at least the step/operation of implementing a predetermined modulation carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech prior to embedding the spread spectrum signal in the speech signal, as provided by the

claimed invention.

The Office Action (page 4 regarding claims 6 and 23) cites column 2, lines 61-67, of Lee in support of the contention that Lee discloses “implementing a predetermined carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech.” However, this portion of Lee does not refer to implementing a predetermined modulation carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech, as the amended claim 1 requires, but rather refers to spectrally shaping a spread spectrum signal. The “primary data signal” and the spread spectrum signal in Lee are later combined and modulated for transmission. However, in generating the spread spectrum signal itself, while Lee may spectrally shape the spread spectrum signal to simulate the spectral shape of the primary data signal (as column 2 states), Lee does not implement a predetermined modulation carrier frequency to generate the spread spectrum signal prior to embedding the spread spectrum signal in the speech signal.

By way of a clarifying example, Applicants respectfully direct the Examiner’s attention to page 17, lines 8-22, of the present specification where it is illustratively explained that spread spectrum modulator 706 generates a spread spectrum signal from a digital message and a pseudonoise sequence wherein a signal is modulated in modulator 814 using a predetermined carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech. It is to be appreciated that the spread spectrum signal may later be spectrally shaped in accordance with a vocal tract filter 708 (see description of FIG. 7 in present specification at pages 13-16). However, it is to be understood that the spread spectrum signal of the claimed invention is better matched to a speech channel by performing the modulation step rather than by performing only a spectral shaping step.

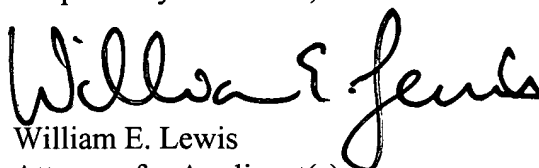
Thus, to summarize, Lee merely spectrally shapes the spread spectrum signal and later modulates for transmission the combination of the spread spectrum signal and the primary data signal. However, Lee fails to implement a predetermined modulation carrier frequency such that the spread spectrum signal is within a frequency bandwidth corresponding to speech prior to embedding the spread spectrum signal in the speech signal, as provided by the claimed invention.

Neither Rabiner, Vigoda nor Cox remedy these deficiencies.

Applicants also assert that the dependent claims of the present application recite patentable subject matter in their own right.

In view of the above, Applicants believe that claims 1-36 are in condition for allowance, and respectfully request withdrawal of the various §103(a) rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

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